

AN ANNOTATED LIST OF THE DERMAPTERA AND
ORTHOPTERA COLLECTED IN MID-SUMMER
AT WINGINA, VIRGINIA, AND VICINITY

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Wingina is on the James River 104 miles above Richmond and about the same distance southwest of Washington. There are no towns within a long distance of the place, only villages. It is the summer home of Colonel Wirt Robinson and his house and museum overlook the low-land annually inundated by the river. This low-land has been used as corn-land since the settlement of the country by the whites, and before them by the Indians, whose stone hoes are still not uncommon objects in the fields.

Back from the river the land gradually rises to the first line of the Blue Ridge Mountains from six to ten miles away to the northwest, while close to the river to the south in Buckingham County there are some rugged forest-covered hills about 500 or 600 feet in height. There are also some isolated mountains in Buckingham County that appear unexpectedly in the otherwise more level country. Such are Spear's (1,500 ft.), Pluet's and Buck Mountains, all close together, while to the southeast, and about 15 miles away, there is Willis Mountain (1,159 ft.), a surprising pile of precipitous rocks. Willis Mountain was visited August 9, 1921, and Spear's Mountain and vicinity have been visited several times. On both sides of the river there are many miles of forested country, and many old and abandoned fields, the country being unsettled enough to protect a number of wild turkeys and some deer. The forests are mainly of a mixed growth of oaks and pines including among the five species of the latter the Table Mountain pine and a few white pines. The persimmon tree and the Spanish oak (*Quercus falcata*) are common; there are also sweet gums, and in the low-land a few willow oaks.

Colonel Robinson has helped me collect many of the eighty-four species mentioned in the list. He has often guided me through miles of forest in all directions from his home, and he is particularly expert in poling the boat in the river among its many shallows and rapids. Our visits to Spear's Mountain, where we stayed over night in a cabin, required two days each; one for the outward journey along the wood-paths or the almost equally tree-shaded roads where we came to but few dwellings, and the other for the return. We went slowly and were ever on the lookout for insects and whatever might be unusual in the natural history line. If these attractive localities could be visited in the fall, a considerable number of species would no doubt be added to the present list. It is presented, because few naturalists seem to have visited this part of the country, their collecting having been more confined to the mountains of Virginia, or to the low-lands near the sea.

There has, however, been a notable exception, for Dr. Henry Fox collected Orthoptera in 1914 and 1915 while at Charlottesville, Albemarle County, 35 miles northeast of Wingina. Both localities are in the Piedmont region, and about the same distance away from the Blue Ridge Mountains, but Wingina has evidently a more extensive Orthopterous fauna that has come to it from the coastal region up the valley of the James.

Dr. Fox in his Field Notes on Virginia Orthoptera (Pro. U. S. Nat. Mus., 1917), describes the country about Charlottesville as follows: "Altitude, 300 to 800 feet. Topography varied, but as a rule fairly rugged, with steep slopes near streams, but with more or less extensive level or slightly rolling interstream areas. Soils sandy loams and stiff red clays." This is a fair description of the vicinity of Wingina, but from the topographic map Wingina and the country across the James in Buckingham County, which we often visited, seems to be a little less rugged than that at Charlottesville. The Spear's Mt. region, to which we sometimes walked, is 6 or 7 miles across country from Wingina, but is only 4 miles from the James, which here has a considerable bend to the southward.

The sequence of the families used by Dr. Fox has been followed in the present list so that a ready comparison might be

made with his interesting paper, but we prefer the arrangement proposed by Prof. Albert P. Morse in his Orthoptera of New England (1920). Much use has been made of Dr. Blatchley's Orthoptera of Northeastern America, and also of several papers by Rehn and Hebard.

Order **DERMAPTERA**

Family **Forficulidae**

Vostox brunneipennis (Serville). Wingina, July 12, 1917, male and four females.

Labia minor (Linné). Wingina, July 23, 1924, four males and two females collected at light by Col. Robinson, and on Aug. 6 we collected a female in the same manner.

Doru aculatum (Seudder). This is the most common of the earwigs about Wingina and over the river in Buckingham Co. It may be found in the woods on the upland, but is most plentiful along the river on many of the plants. It is often common on the luxuriant Johnson grass, and may also be found in the silk of growing corn, and where the leaves join the stock. Nymphs as well as adults occur in mid-summer.

Order **ORTHOPTERA**

Family **Blattidae**

Ischnoptera deropeltiformis (Brunner). Represented in the collection by three adult females collected in July and August. At this time there were also nymphs, but no adult males, these being outlived by the females.

Parcoblatta uhleriana (Saussure). This is the most common of the roaches about Wingina, and some have been collected in molasses traps across the river. As with the last species no living males have been secured in July and August, though a number of dead ones were found in an old vase in the house. Nymphs found in June and later.

Parcoblatta virginica (Brunner). As in *uhleriana* the females live at least until the middle of August. Four have been collected but no males.

Parcoblatta divisa (Saussure and Zehntner). Buckingham Co., Aug., 1924, female from molasses trap set near the river in deep woods.

Parcoblatta pennsylvanica (De Geer). A male collected by Col. Robinson, June 24, 1923. The remaining five are females collected in August, one of them found as late as the 14th. They are usually under old logs.

Cryptocercus punctulatus Scudder. This interesting and wingless species has been found sparingly in rotten logs usually in the moist woods in the deep ravines leading down to the river. Six specimens have been collected in July and August. On Aug. 12, 1924, one was found in a molasses trap close to the river in Buckingham Co. As with the other wood-roaches, young and adults occur together in mid-summer. This insect is called the "Brown Wingless Cockroach" by Dr. Blatchley, which is a correct enough name for about thirty of the adults in the writer's collection from Georgia, North Carolina and West Virginia, but some examples from West Virginia and several of the series collected near Wingina in July and August, are shining black.

Family Mantidae

Stagmomantis carolina (Johannson). While this is a common insect about Wingina and in Buckingham Co., it matures rather late in the season, and all of the many seen in July and August have been about one third to one half grown.

Family Phasmidae

Diapheromera femorata (Say). Many immature individuals found, usually about one half grown, in the first part of August. When disturbed they often feign death. This habit of keeping perfectly quiet in the presence of danger must be of considerable

benefit to this stick-mimicking defenseless insect, but if persistently annoyed it generally makes off. Further north, with a shorter season, this species matures much earlier.

Family Tetrigidae

Nomotettix cristatus compressus Morse. One male and one female of the short-winged form, Wingina, June, 1919.

Acrydium ornatum Say. Wingina, July 8, 1917, male and female; Aug. 12, 1924, female on lowland near the river.

Acrydium arenosum angustum (Hancock). Of the five taken at Wingina in June, July and August, all were females. In Buckingham Co. a female taken June 21, and a male June 22, 1919. Another female, July, 1923.

Neottix femoratus (Scudder). Seven males and fifteen females collected in July and August, all of the short-winged form except two females.

Paratettix cucullatus (Burmeister). Common in many places along the river and near some of the lesser streams in June, July and August. Fifteen males and 27 females are in the collection.

Tettigidea lateralis (Say). This is the most common species of grouse locust to be found about Wingina and across the river. It generally occurs on moist ground. A pair of the long-winged form were found in copulation July 31, 1916. Of the 69 specimens collected, 54 are short-winged and 15 long-winged. In this species the sexes seem to be about evenly divided in mid-summer and there are also nymphs at the same season. On July 18, 1917, I saw one of the long-winged females jump into a shallow pool and stay under water about one half minute.

Family Acrididae

Tryxalis brevicornis (Linné). Found along the river and brooks where the ground is low and the vegetation rank. A con-

siderable number were collected in August, 1921, July, 1923, and August, 1924. The males are more uniform in color than the females, which latter may have both the tegmina and hind femora green; the tegmina partly green and brown and hind femora green, or the entire body brown. There are also specimens in which the dorsal stripe may be grayish or yellowish. The males usually have the dorsal surface green, sides brown from the head to end of tegmina, while the femora of all of the legs are green. Rarely there are all brown males.

It has generally been considered that the flight of this insect is noiseless and Blatchley so states in his interesting account of the species. Col. Robinson and I have, however, often heard the crackling flight of the males. On Aug. 16, 1921, at West Hampton, near Richmond, Va., in a wet place on the border of a pond, this grasshopper was quite common, and I again heard some of the males make a crackling noise in flight.

Syrbula admirabilis (Uhler). We often found this species in dry places among the little pines, grass, etc., by the side of the wood roads. On July 25, 1923, we found mature males, and immature females. On Aug. 1, 1916, four mature males and one female. Mostly mature by the first of August.

Eritettix simplex (Scudder). Two females were found on top of a grassy hill in Buckingham Co., near the river, on June 20, 1919. Three more females were collected the same year near Wingina, two on June 27 and one on July 8. One of those collected on June 20 has the usual pair of blackish stripes on the head and pronotum, the sides of the latter being green, while the other female collected at the same time lacks the supplementary carinae and also the stripes; it is variety *dorsalis* Blatchley. The remaining three specimens have the dorsal stripes but are not green on the sides of the pronotum.

Orphulella pelidna (Burmeister). Common and found in many places. Spear's Mt., Aug. 14-15, 1924. Females with the dorsum of the head, pronotum and folded tegmina green are less common than the brownish individuals. Occasionally a female

has the top of the folded tegmina quite reddish. The males are less strikingly variable.

Dichromorpha viridis (Scudder). On July 25, 1923, a few adult females that had just matured, some female nymphs, and some mature males were found near the Warminster Road, Wingina. The eleven males in the collection, found at various dates in July and August, are all of the green-backed variety; one of the females is green, and one brown.

Arphia xanthoptera (Burmeister). A number of adults collected at Wingina in August, and a nymph at Spear's Mt. July 30, 1923.

Arphia sulphurea (Fabricius). June, July and August, Wingina and Buckingham Co. An occasional individual showing a dorsal yellowish stripe on the closed elytra.

Chortophaga viridifasciata (De Geer). Common in June, July and August about Wingina and in Buckingham Co. Five males partly green in color, instead of the usual brown, have been collected. Greenish females are much more common, some of them colored very beautifully. As this insect lives over winter in the nymphal state, maturing in the spring, and as nymphs have been found at Wingina in July, it is probably double brooded.

Hippiscus phoenicopterus (Burmeister). A fairly common species in old pastures and at the edge of open woods in June, July and August. Also at Spear's Mt., July 30, 1923.

Hippiscus rugosus (Scudder). Frequent in old upland fields. Willis Mt., Aug. 9, 1921; both adults and nymphs, Spear's Mt., Aug. 14, 1924. In addition to the characters usually given the femora are much narrower in the males of this species than in *phoenicopterus*.

Dissosteira carolina (Linné). Adults in June, July and August, and some of them of the reddish tegmina variety.

Spharagemon bolli (Scudder). One of the most plentiful of grasshoppers in dry open woods, and found in June, July and August. Willis Mt., Aug. 9, 1921.

Trimerotropis citrina Scudder. Found on sandy ground, but more often on sand bars in the James River. Collected in June, July and August, but not abundant. Only three males and two females have been collected.

Schistocerca americana (Drury). Not infrequent in July and August.

Schistocerca alutacea (Harris). Buckingham Co., June 30, 1925 (Col. Robinson).

Schistocerca damnifica (Saussure). Buckingham Co., July 19, 1919, one female.

Paroxya clavuliger (Serville). In low ground along the river and like situations near brooks.

Melanoplus tribulus Morse. June, July and August. A female nymph Aug. 6, a pair in copulation Aug. 3, 1916; twenty-two specimens in the collection.

Melanoplus devius Morse. July and Aug. in Buckingham Co., some near the river. None have been found on the Wingina side of the river. Eight specimens in the collection.

Melanoplus scudderi (Uhler). Buckingham Co., Aug. 6, 1921, male.

Melanoplus walshii Scudder. Pass between Spear's and Pluet's Mountains, Buckingham Co., Aug. 14, 1924, female. The road between the mountains is narrow and deeply shaded by forest trees. The grasshopper was by the side of the road. It has been examined by Dr. Fox, who was surprised to find that the species occurred so far east of its heretofore known range in Virginia.

Melanoplus atlanis (Riley). This is the most common member of the genus as well as the most plentiful grasshopper at Wingina and across the river in June, July and August. A female of this species was collected by Col. Robinson, December 30, 1923, which suggests that mature individuals may occasionally survive the winter. Dr. Fox collected one male and five females at Charlottesville, December 5, 1913. As a species *atlanis* matures much earlier in the season than *femur-rubrum*, no adults of which have thus far been collected at Wingina.

Melanoplus confusus Scudder (minor). Wingina, June, July and August, but not very plentiful. Buckingham Co., June 20, male and female.

Melanoplus luridus (Dodge). Collected at numerous places in August, often along the margins of woods.

Melanoplus bivittatus femoratus (Burmeister). Plentiful in some localities in the low ground along the river, June, July, August.

Melanoplus punctulatus Scudder. Wingina, Aug. 4, 1916, male, and Aug. 4, 1921, male and female nymph. Found on the trunks of pines and sometimes on oaks.

Family Tettigoniidae

Scudderia curvicauda (De Geer). The most common species of the genus; found in old fields and along the edge of woods in July and August.

Scudderia furcata Brunner. Wingina, male on "sugared" tree trunk, Aug. 12, 1921. Buckingham Co., Aug. 6 and 13.

Symmetropleura modesta Brunner. Buckingham Co., close to James River, Aug. 7, 1924, male beaten from bush into umbrella by Col. Robinson. This extends the known range of this uncommon species somewhat northward along or near the coast.

Amblycorypha oblongifolia (De Geer). Wingina and Buckingham Co.; rather plentiful in July and August. Maturing chiefly in August.

Amblycorypha floridana carinata Rehn and Hebard. Buckingham Co., Aug., 1921, female.

Amblycorypha uhleri Stål. Wingina, Aug., 1916, male; Aug. 21, 1921, male, and Spear's Mt., July 30, 1923, male.

Amblycorypha rotundifolia (Scudder). Frequent; fifteen specimens collected in July and August. Aug. 2, 1923, one male of the brown form.

Microcentrum rhombifolium (Saussure). Wingina, Aug. 2, 1923, male just matured. Buckingham Co., Aug. 5, 1921; Aug. 7, 1924.

Microcentrum retinerve (Burmeister). Wingina, Aug., 1916, female, Aug. 4, 1921, female, and Aug. 3, 1923, male. This last near the museum.

Pterophylla camellifolia (Fabricius). Plentiful in places in July and August, but perhaps not as conspicuously in evidence as in the Pine Barrens of New Jersey, or on parts of Long Island, N. Y. In 1923 the first one heard by Col. Robinson was on July 20.

On the evening of July 25, 1923, a katydid in an apple tree close to Col. Robinson's house commenced to sing at 7:50 P. M., standard time. On July 26 it sang at 8 P. M.; July 27 at 8 P. M.; July 28 at 8 P. M.; July 29 at 8:10 P. M. On July 30 we went to Spear's Mt., but the apple tree katydid record was kept by Col. Robinson's aunt, and the insect sang at 8 P. M. On July 31 at 8:05 P. M.; Aug. 1, 8:10 P. M.; Aug. 2, a clear warm evening, at 8:06 P. M. A second male was first heard in the apple tree on Aug. 2. On Aug. 3, a rainy evening, the katydid (original), with a loud note, sang at 8:05, the other katydid in the same tree a little later. This last individual shortly disap-

peared. On Aug. 4, after a heavy rain, katydid sang at 7:45, stopped and then commenced to sing again at 7:50.

On August 5th the writer left for home and the record of the time when the apple tree katydid commenced to sing each evening was kept by Mr. and Mrs. Clifford Cabell, and is as follows: August 5th, 7:53; 6th, 7:50; 7th, 7:50; 8th, 7:53; 9th, 7:55; 10th, 7:46; 11th, 7:51; 12th, 7:50; 13th, 7:54; 14th, 8 P. M.; 15th, 7:45; 16th, 7:49; 17th, 8:20, cold and rainy; 18th, 8:15, cold and rainy; 19th, 7:45; 20th, 7:52; 21st, 7:47; 22nd, did not sing, too cold, down to 50°; 23rd, did not sing, too cold, down to 50°; 24th, 7:55; 25th, 7:15; 26th, 7:39; 27th, 7:25; 28th, 7:21; 29th, 7:21; 30th, 7:26; 31st, 7:20; September 1st, 7:25; 2nd, 7:31; 3rd, 7:17; 4th, 7:15; 5th, 7:30; 6th, 7:05; 7th, 7:38; 8th, 7:20; 9th, 7:01; 10th, 7:10; 11th, 7:05; 12th, 6:55; 13th, 6:57; 14th, 6:54; 15th, 16th and 17th, did not sing, too cold; 18th, 6:50, song very feeble. On Sept. 23, Mr. Cabell noted, "Has not sung since the 18th, so expect he has knocked off for good. Certainly kept it up for a long time."

The apple tree where this katydid made his home was four or five hundred feet from the woods where there were many of his kind. It was an ill-chosen locality for him. He sang with remarkable regularity as regards the time of evening, commencing somewhat earlier as the season advanced. As the nights grow colder, it is of quite common occurrence for these insects to sing in the sunny hours of an October day.

Neoconocephalus exiliscanorus (Davis). Frequent in the low ground along the river; also in Buckingham Co. The old bed of the one-time James River and Kanawha Canal is the habitat of *exiliscanorus* and other species partial to low ground.

Neoconocephalus robustus crepitans (Scudder). Both in the low land along the river and in the upland fields, July and August. Brownish colored individuals occasional. The specimens collected have the fastigium shorter than in *N. robustus robustus* from further north.

Orchelimum agile (De Geer). Wingina, Aug., 1921, female; Buckingham Co., Aug. 11, 1921, five males.

Orchelimum vulgare Harris. Wingina, Aug. 14, 1921, male, female and female nymph; Aug., 1924, male.

Conocephalus fasciatus (De Geer). Wingina and Buckingham Co. Common, June, July and August.

Conocephalus brevipennis (Scudder). Wingina, Aug., 1921, male and female.

Conocephalus strictus (Scudder). Wingina and Buckingham Co., Aug. 7 and 14, nymphs. The species can be easily recognized, even when immature, by the very long ovipositor.

Atlanticus davisii Rehn and Hebard. Wingina and Buckingham Co. Often in deep shaded woods among the dry leaves, June, July, August. Sometimes attracted to "sugared" trees. We have collected many by disturbing the dry leaves on the ground, especially in the woods to the north of Col. Robinson's museum. The collection contains forty-four individuals and others could have easily been secured. Wingina is less than sixty miles southwest of Orange, Orange Co., Va., from whence came the types and paratypes of the species.

Camptonotus carolinensis (Gerstæcker). About a dozen mature individuals and several times as many nymphs have been found at Wingina and in Buckingham Co., in June, July and August. They were often collected in the umbrella by beating dead leaves hanging on bushes and low branches. With its extremely long antennae and pale body this interesting home-constructing insect presents a remarkable appearance against the dark background of an umbrella.

Ceuthophilus nigricans Scudder. Wingina, Aug., 1916, male and female. A few mature individuals have been collected in August, but nymphs were not uncommon in our molasses traps in Buckingham Co. in early August, 1924.

Ceuthophilus gracilipes (Haldeman). Mature males and females and many nymphs were found August 4, 1916, in Old Joe's

Cave in the steep embankment of the James River in Buckingham Co., on the opposite side of the river and a little above Wingina. Some of these specimens were compared by Prof. Albert P. Morse with those in the Scudder collection and found to be *gracilipes*. On Aug. 11, 1921, three males, three females and five nymphs were collected in the cave, while on July 26, 1923, only six mature individuals and no nymphs were seen. The insects were near the top of the cave and close to some cracks in the rock into which they retreated if alarmed.

We also collected some *gracilipes* in our molasses jars.

Family Gryllidae

Gryllotalpa hexadactyla Perty. A number have been heard singing in August in low wet land and a nymph was collected Aug. 1, 1921. In Col. Robinson's collection there are two mature individuals dated July 18, 1913, and Aug. 18, 1919.

Tridactylus apicalis Say. A single specimen in Col. Robinson's collection dated July 14, 1917.

Ellipes minuta (Scudder). Sometimes a common species on the sand flats along the river, brooks, etc., in June, July and August. Many have been collected.

Nemobius fasciatus (De Geer). But few mature individuals have been found, as the majority reach that stage late in August and in September.

Nemobius fasciatus var. **socius** Scudder. Wingina; woods north of museum, Aug., 1924, two males and two females.

Nemobius confusus Blatchley. Buckingham Co., nymph among dry leaves in woods on bank of the James River, Aug., 1924, and easily determined by having "last two joints of maxillary palpi pure bone-white."

Miogryllus verticalis (Serville). Wingina and Buckingham Co., June, July and August, adults and nymphs. Not uncommon in dry woods under leaves, bits of wood, etc.

Gryllus assimilis Fabricius. Wingina and Buckingham Co., June, July and August. Most of the specimens belong to the var. *pennsylvanicus* Burm.

Oecanthus niveus (De Geer). No specimens have been collected but the distinctive song has been heard in August in the trees growing in the garden at Wingina.

Oecanthus angustipennis Fitch. Wingina and Buckingham Co. The earliest record for a mature male is Spear's Mt., July 30, 1923, at which time there were also many nymphs. On days preceding and immediately following July 28, 1923, many nymphs, but no adults, were beaten from the vegetation just north of the museum, where *exclamationis* was found. It evidently matures later than that species.

Oecanthus exclamationis Davis. Wingina and Buckingham Co., including Spear's Mt. Matures in July and August. Often found in post oaks, etc., but may occasionally be collected in bushes growing in moist situations. On July 28, 1923, one male and six females, all adults, were found on post oaks near the museum. At this same date only nymphs of *angustipennis* could be found, as already noted. The song of *exclamationis* resembles that of *angustipennis*, but is considerably louder, continues longer, and the stops between the periods of song are relatively shorter. In *angustipennis* the song and the intervals between are more nearly of the same length.

Oecanthus nigricornis var. **quadripunctatus** Beut. Wingina, July, 1917, male and female; Aug. 4, 1923, males and females mating in meadow and in the garden.

Oecanthus pini Beutenmuller. Wingina, July 28, 1923, female found on pine tree near the museum.

Oecanthus latipennis Riley. Numerous nymphs, but no adults, have been collected as they mature late in August.

Neoxabea bipunctata (De Geer). Wingina and Buckingham Co. Nymphs in June; two adult females July 21 and 23, 1921; not uncommon in August. On August 9, 1924, four males were found while they were singing in the apple trees in the garden. The song is continued for some time longer than in *exclamationis* and considerably longer than in *angustipennis*. The intervals or stops are very short, in fact on very warm evenings it is almost continuous, and when several singing individuals are near each other it may appear to be so. On August 12, 1924, a female was found in an apple tree near to two singing males.

Anaxipha exigua (Say). Wingina and Buckingham Co., July and August. Common and found in many different situations. Beaten from oaks in dry woods, but is most numerous in the rank vegetation on the banks of the James. On one occasion one was found between the slabs at a saw-mill.

Cyrtoxipha gundlachi columbiana Caudell. Wingina, Aug., 1921, two males and three females. Buckingham Co., Aug. 5, 1921, two males. Nymph beaten from an oak near the museum July 28, 1923, and numerous nymphs on bushes along a brook at Spear's Mt., July 30, 1923.

Phylloscyrtus pulchellus Uhler. Wingina and Buckingham Co. Very plentiful in the rank vegetation along the James; also along a brook at Spear's Mt. This beautiful little cricket, that keeps its antennae in almost constant motion, matures in early August. An adult female was found August 11, 1921, feeding on the seed-bearing stalk of a plantain (*Plantago*).

Hapithus agitator Uhler. Only nymphs have been found.

Orocharis saltator Uhler. Wingina and Buckingham Co.; common. Two males found near the river Aug. 13, 1921. It matures mainly in the latter part of August.